

REPORT DOCUMENTATION PAGE			<i>Form Approved</i> OMB No. 0704-0188	
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1. REPORT DATE (DD-MM-YYYY) 23-04-2012		2. REPORT TYPE Master of Military Studies Research Paper		3. DATES COVERED (From - To) October 2011 - April 2012
4. TITLE AND SUBTITLE Training Management in the CH-46E Community After MAWTS-1 Stands Down its CH-46E Division			5a. CONTRACT NUMBER N/A	
			5b. GRANT NUMBER N/A	
			5c. PROGRAM ELEMENT NUMBER N/A	
6. AUTHOR(S) Major Garth W. Burnett, USMC			5d. PROJECT NUMBER N/A	
			5e. TASK NUMBER N/A	
			5f. WORK UNIT NUMBER N/A	
7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES) USMC Command and Staff College Marine Corps University 2076 South Street Quantico, VA 22134-5068			8. PERFORMING ORGANIZATION REPORT NUMBER N/A	
9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES) N/A			10. SPONSOR/MONITOR'S ACRONYM(S) N/A	
			11. SPONSORING/MONITORING AGENCY REPORT NUMBER N/A	
12. DISTRIBUTION AVAILABILITY STATEMENT Unlimited				
13. SUPPLEMENTARY NOTES N/A				
14. ABSTRACT This paper examines the future role of Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) in the management of the Weapons and Tactics Training Program (WTTP), Training and Readiness (T&R) program and advanced instructor certification of aircrew in Marine Medium Helicopter Squadrons (HMM) as they transition to Marine Medium Tiltrotor Squadrons (VMM). In doing so, this paper provides a historical background of the unique difficulties posed by the transition from CH-46E to the MV-22B, the current transition plan for the remaining HMMs, and an examination of the current management structure of the WTTP as it relates to the CH-46E, and the CH-46E T&R program. The examination focuses on the management of the WTTP and T&R Manual, and the entities that exist to perform that duty in lieu of MAWTS-1, as the HMM community draws down throughout the Marine Corps. Through this examination, recommendations are made on how the Marine Corps can pursue alternative means of T&R Manual syllabus sponsorship and WTTP management for the CH-46E community while it prepares for the MV-22B transition.				
15. SUBJECT TERMS Training Management, CH-46E, WTTP, MAWTS-1, MV-22B Transition				
16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT UU	
a. REPORT Unclass	b. ABSTRACT Unclass	c. THIS PAGE Unclass	18. NUMBER OF PAGES 31	
19a. NAME OF RESPONSIBLE PERSON Marine Corps University / Command and Staff College			19b. TELEPHONE NUMBER (Include area code) (703) 784-3330 (Admin Office)	

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MASTER OF MILITARY STUDIES

TITLE:
**TRAINING MANAGEMENT IN THE CH-46E COMMUNITY AFTER MAWTS-1
STANDS DOWN ITS CH-46E DIVISION**

SUBMITTED IN PARTIAL FULFILLMENT
OF THE REQUIREMENTS FOR THE DEGREE OF
MASTER OF MILITARY STUDIES

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Executive Summary

Title: Training Management in the CH-46E Community After MAWTS-1 Stands Down Its CH-46E Division

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Thesis: The CH-46E community is unprepared for the assumption of Training and Readiness Manual Syllabus Sponsor and Weapons and Tactics Training Program management responsibilities after MAWTS-1 stands down its CH-46E Division. The Marine Corps can utilize existing organizations within the 3rd Marine Aircraft Wing (3D MAW) that are able to assume these responsibilities to provide standardized management of the governing training documents for the CH-46E community until its sundown.

Discussion: This paper examines the future role of Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) in the management of the Weapons and Tactics Training Program (WTTP), Training and Readiness (T&R) program and advanced instructor certification of aircrew in Marine Medium Helicopter Squadrons (HMM) as they transition to Marine Medium Tiltrotor Squadrons (VMM). In doing so, this paper provides a historical background of the unique difficulties posed by the transition from CH-46E to MV-22B, the current transition plan for the remaining HMMs, and an examination of the current management structure of the WTTP as it relates to the CH-46E, and the CH-46E T&R program. The examination focuses on the management of the WTTP and T&R Manual, and the entities that exist to perform that duty in lieu of MAWTS-1, as the HMM community draws down throughout the Marine Corps. Through this examination, primary and secondary recommendations are made on how the Marine Corps can pursue alternative means of T&R Manual syllabus sponsorship and WTTP management for the CH-46E community while it prepares for the MV-22B transition.

Conclusion: The current plan for the CH-46E community as it transitions to the MV-22B does not include any plan to provide T&R Manual syllabus sponsorship duties or WTTP management duties through the community's sundown. There are several different means of extending these programs in the CH-46E community using existing entities that will create no extra fiscal burden for the Marine Corps and will assist in the graceful transition of the medium lift assault support community.

DISCLAIMER

THE OPINIONS AND CONCLUSIONS EXPRESSED HEREIN ARE THOSE OF THE INDIVIDUAL STUDENT AUTHOR AND DO NOT NECESSARILY REPRESENT THE VIEWS OF EITHER THE MARINE CORPS COMMAND AND STAFF COLLEGE OR ANY OTHER GOVERNMENTAL AGENCY. REFERENCES TO THIS STUDY SHOULD INCLUDE THE FOREGOING STATEMENT.

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Acknowledgements

This project is the culmination of seven years of personal experiences dealing with the transition of the CH-46E to the MV-22B. Although unaware of the need for clarity on this topic at the time, these cumulative experiences became the foundation for my research. I want to thank Dr. Mark Jacobsen, for his mentorship throughout this process. I also want to thank LtCol Shawn Callahan, my Military Faculty Advisor, for his support this year. He is a consummate professional and true servant leader. Finally, I would like to acknowledge the unquestioning love and support shown by my wife Kristin. It is for her and our beautiful children that I strive to be a better person.

INTRODUCTION

This paper examines the future role of Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) and the CH-46E community in the management of the Weapons and Tactics Training Program (WTTP), Training and Readiness (T&R) program and advanced instructor certification of aircrew in Marine Medium Helicopter Squadrons (HMM) as they transition to Marine Medium Tiltrotor Squadrons (VMM). In doing so, this paper will provide a historical background of the unique difficulties posed by the transition from CH-46E to MV-22B, the current transition plan for the remaining HMMs, and an examination of the current management structure of the WTTP as it relates to the CH-46E, and the CH-46E T&R program. The examination will focus on the management of the WTTP and T&R Manual and the Marine Corps entities that exist to perform that duty in lieu of MAWTS-1, as the HMM community draws down throughout the Marine Corps. Through this examination, recommendations will be made on how the Marine Corps can pursue alternative means of T&R management and WTTP execution for the CH-46E community while it prepares for the MV-22B transition. The CH-46E community is unprepared for the assumption of Training and Readiness Manual Syllabus Sponsor and Weapons and Tactics Training Program management responsibilities after MAWTS-1 stands down its CH-46E Division. The Marine Corps can utilize existing organizations within the 3rd Marine Aircraft Wing (3D MAW) that are able to assume these responsibilities to provide standardized management of the governing training documents for the CH-46E community until its sundown.

BACKGROUND

Marine Corps Aviation is in the midst of an unprecedented renewal and transformation. In the next ten years, every squadron in the Marine Corps will either be in transition to a new aircraft or will have recently completed an airframe transition. The fixed wing community has already seen the introduction of the KC-130J Hercules with the Harvest Hawk mission kit to the Marine Aerial Refueler Transport Squadron (VMGR).¹ On January 12, 2012, the first two Short Take Off and Vertical Landing (STOVL) variants of the F-35B Lightning II Joint Strike Fighter (JSF) were accepted into the Marine Corps inventory.² These cutting edge airplanes are the planned replacement for the FA-18A/C/D Hornet aircraft in Marine Fighter Attack Squadrons (VMFA), the AV-8B Harrier II aircraft in Marine Attack Squadrons (VMA). The JSF and Marine Corps Unmanned Aircraft Systems (UAS) in Marine Unmanned Aerial Vehicle Squadrons (VMU) will replace the EA-6B Prowler aircraft in Marine Tactical Electronic Warfare Squadrons (VMAQ) throughout the Marine Corps.³

Legacy helicopters such as the UH-1N Iroquois and the AH-1W Super Cobra in Marine Light Attack Helicopter Squadrons (HMLA) are being replaced by UH-1Y Venom and AH-1Z Viper variants of the same aircraft model.⁴ Marine Heavy Helicopter Squadrons (HMH) currently fly either the CH-53D Sea Stallion or the CH-53E Super Stallion helicopters. Those units that fly the CH-53D Sea Stallion are in the process of converting to the CH-53E Super Stallion or will transition the squadrons to medium lift assault support platforms.⁵ The HMHs currently flying the CH-53E Super Stallion will convert to the CH-53K, which is still in development, as the Marine Corps' long term heavy lift assault support platform.⁶

None of these transitions however, is as complex as the transition of the HMM. The HMM is equipped with the CH-46E Sea Knight. The CH-46E is a Vietnam era helicopter that

has been in service almost 50 years, and is being replaced by the MV-22B Osprey.⁷ The Osprey transition has proved to be one of the most difficult transitions for Marine Corps Aviation because the Osprey is not just another helicopter. The Osprey is a tiltrotor design, an aircraft that flies like an airplane but takes off and lands like a helicopter. In doing so, the Osprey is able to “[C]ombine the vertical agility of a helicopter with the speed of an airplane.”⁸ Such an extreme transformation of an aviation community as the transition from a rotary wing aircraft to a tiltrotor aircraft presents several hurdles that complicate ability to manage the training that must take place during the aircraft transition.

First, the tiltrotor design is a unique concept that was developed specifically for all four services of the United States military. The drawback of new technology development led to eventual delays in the Osprey program, resulting in the United States Army and Navy withdrawing from the program and the United States Marine Corps and Air Force limiting their overall procurement of aircraft. The delay also resulted in the current extension of the Marine Corps’ CH-46E helicopter lifespan as a fallback to meet operational requirements.

The second hurdle is that the Marine Corps is breaking new ground with each step of the transition. There is no pool of experience outside the Marine Corps or Air Force V-22 community from which to draw aircrew, maintainers, and engineers. The speed of the transition of the medium lift assault support community is limited by the pace at which the Marine Corps can train personnel and the rate at which Bell-Boeing can produce new aircraft and deliver them to the Marine Corps.

The third major hurdle involves simultaneously training both tiltrotor and helicopter medium lift squadrons. Where a conversion from an AV-8B to an F-35B is a move from one jet airplane to another, more advanced jet, the fundamental aspects of flying the aircraft remain

constant. This is not the case when transitioning from a fixed wing airplane to a helicopter, or vice versa. It is also not the case when transitioning from a helicopter or fixed wing airplane to a tiltrotor airplane. The flight profiles of tiltrotor airplanes contain characteristics of both fixed wing aircraft and helicopters. This requires extensive training to prepare aircrew for duty in their new platform.

The second order effect of extensive training for transitioning aircrewmembers is experienced throughout the Operating Forces by the gap in time when units are not available for tasking and fulfillment of operational requirements. This transition time causes additional stress on the remaining units by increasing their operational tasking. The long term health of the medium lift assault support community will be better when the transition to MV-22B is complete, but in the mean time, how can the remaining CH-46E units manage the WTTP and T&R program and still fulfill all of their operational requirements?

There were 17 active component CH-46E squadrons in the Marine Corps prior to the commencement of the MV-22B transition. Nine squadrons are now complete with the MV-22B transition, as determined by attainment of Full Operational Capability (FOC).⁹ There are also four squadrons that are in the midst of the transition and have not yet reached FOC, including VMM-561, a newly created squadron that did not previously fly the CH-46E. That leaves five remaining active component CH-46E squadrons that will begin the transition to the MV-22B in the next three years.¹⁰ The units that are complete with the MV-22B transition are in a favorable position to manage the WTTP and T&R program as the numbers of qualified aircrew available are increasing almost daily. The more troublesome aspect of the transition is how the remaining legacy squadrons will manage their responsibilities in the WTTP and T&R program as the number of qualified aircrew available decreases.

CH-46E to MV-22B TRANSITION PLAN

The mission order outlining the transition guidance for the MV-22 (released in January 1999) intended to minimize the impact of the transition on the operational forces and deployment cycles.¹¹ The initial transition plan balanced the deployment cycles of the remaining HMMs on the East Coast to compensate for the reduction in overall number of available squadrons as units entered the transition to the MV-22B. Before transitioning any HMMs on the West Coast, the first four VMMS that transitioned on the East Coast had to be FOC in order to meet the demands of the deployment cycle requirements.¹² The 1999 guidance and overall transition concept to begin the MV-22 transition was broken down into five phases, as reflected in Table (1) below.

Table 1

1999 Phases of V-22 Transition

PHASE	TIME	OBJECTIVE
I - Train the Trainers	Oct 1998 - Mar 2001	Prepare VMMT-204 for Instructional Duties
II - East Coast Initial	Mar 2001 - Oct 2004	Transition East Coast CH-46E squadrons
III - West Coast Initial	Apr 2004 - Oct 2006	Transition West Coast CH-46E squadrons
IV - Hawaii and Okinawa	Jul 2006 - Feb 2008	Transition Hawaii and Okinawa CH-46E and CH-53D squadrons
V - Complete West and East Coasts	2008 - 2014	Transition remaining West Coast and East Coast CH-46E squadrons

Source: Robert M. Liebe, "Planning Flight Training for the Transition to the V-22 Osprey," (Master's Thesis, Naval Postgraduate School, 2000), 7, Table 2.

The five phases of the transition were based on several key factors that survived rigorous scrutiny and remain in place today, though little else of the original transition plan is intact. The transition plan emphasized the importance of infrastructure being ready to support training prior

to the training pipeline opening up for aircrew. It also placed stipulations on career progression and allowed manpower planners heavy control over billet assignments that enabled the MV-22 community to keep aviators and aircrew in billets flying the aircraft.¹³ This coordination of fleet requirements with officer and enlisted assignments personnel to maintain an experienced flight base was key to the rotation policies that emerged in the initial deployments of the VMM squadrons in 2007 – 2010.¹⁴

Other than the few planning factors mentioned above that started the MV-22 transition pipeline, little else survived the tumultuous period of the early 2000s. Two Osprey mishaps, the first on April 8, 2000 and the second on December 11, 2000, killed 23 Marines and put the MV-22 program on an indefinite hold, until Congress' Blue Ribbon Panel to Review the V-22 Program concluded its investigation of the incidents and the feasibility of continuing production of the plane.¹⁵ The program continued under controlled conditions at first, then eventually reached full production status by passing the second Operational Evaluation (OPEVALII) on July 13, 2005 with very little difficulty and much fanfare.¹⁶ Each year, from the achievement of full rate production in 2005, to the present point in the transition plan, the Marine Corps published a Fiscal Year (FY) Aviation Plan (AvPlan) that detailed the current state and future forecast of the MV-22 transition.

In comparison, the FY AvPlans ebb and flow in their goals for the transition of the remaining HMMs and also for the geographic placement of the VMMs. The FY 2012 AvPlan, released in December 2011 by the Deputy Commandant for Aviation, is very similar to those of FY 2010 and FY 2011. Indications and deployment milestones reported from operational VMMs are proving the viability and value of the MV-22B every day in the Operating Forces. The current plan for transition of the remaining HMMs, shown in Table (2), charts the sundown

of the CH-46E community. The last remaining active component CH-46E squadron to enter the transition, HMM-268 at Marine Corps Air Station (MCAS) Camp Pendleton, California, does so in FY 2015. The final reserve component CH-46E squadron to transition is HMM-774 at Naval Air Station (NAS) Norfolk, Virginia, in FY 2016.¹⁷

Table 2

FY 2012 MV-22 Transition Timeline

MV-22 TRANSITION TIMELINE

CURRENT FORCE:

8 VMM SQUADRONS ESTABLISHED
3 VMM SQUADRONS IN TRANSITION
4 AC SQDN x 12 CH-46E
2 RC SQDN x 12 CH-46E
1 FRS x 12 CH-46E
1 FRS x 20 MV-22B

FORCE GOAL FY20:

16 AC VMM SQDN x 12 MV-22B
1 FRS SQDN x 20 MV-22B
2 RC VMM SQDN x 12 MV-22B

ABUSHED

TRANSITION

UNIT/LOCATION	PMAT	FY11	FY12	FY13	FY14	FY15	FY16	FY17	FY18	FY19	FY20	FY21	
		1	2	3	4	1	2	3	4	1	2	3	4
MAG-26/29													
VMMT-204	20 MV-22												
VMM-263	12 MV-22												
VMM-162	12 MV-22												
VMM-266	12 MV-22												
VMM-261	12 MV-22												
VMM-365	12 MV-22												
VMM-264	12 MV-22												
MAG-16													
VMM-161	12 MV-22	V											
VMM-166	12 MV-22		V										
VMM-561	12 MV-22	M		V									
VMM-165	12 MV-22		M		V								
VMM-163	12 CH-46E			M		V							
HMM-363 (2)	10 CH-53D			M									
HMM-164					M		V						
MAG-36													
HMM-265	12 CH-46E			V									
HMM-262	12 CH-46E				V								
MAG-41													
HMM-764	12 CH-46E				M			V					
MAG-39													
HMMT-164	12 CH-46E												
HMM-364	12 CH-46E					M		V					
HMM-268	12 CH-46E						M		V				
MAG-24													
VMM-363													
VMM-164													
MAG-49													
HMM-774	12 CH-46E						M			V			
GUAM													
WHMO													
HMM-1	12 CH-46E				M		V						

M - MV-22 TRANSITION BEGINS

V - MV-22 SQUADRON FULLY OPERATIONAL CAPABLE (FOC) / ENTERS PTP PHASE

NOTES:

- 1) NLT END OF FY12 VMM-561 WILL DELIVER AIRCRAFT AND PERSONNEL TO VMM-265 ON OKINAWA AND THEN DEACTIVATE.
- 2) HMM-363 TRANSITION BEGINS DURING 3RD QTR FY12 WITH TRANSFER FROM MAG-24 TO MAG-16. DURING 4TH QTR FY13 SQUADRON TO FLOW PERSONNEL AND AIRCRAFT TO MAG-36 TO FACILITATE IMMEDIATE TRANSITION OF VMM-262. SQUADRON TO RETURN TO MAG-24 DURING 4TH QTR FY15 AS VMM-363.
- 3) HMM-164 TRANSITION BEGINS DURING 3RD QTR FY14 WITH TRANSFER FROM MAG-39 TO MAG-16. SQUADRON TO TRANSFER TO MAG-24 DURING 4TH QTR FY16 AS VMM-164.
- 4) HMM-265 TO REDESIGNATE AS VMM-265 AND RECEIVE AIRCRAFT AND PERSONNEL FROM VMM-561 TO SUPPORT IMMEDIATE TRANSITION.
- 5) HMM-262 TO REDESIGNATE AS VMM-262 AND RECEIVE AIRCRAFT AND PERSONNEL FROM VMM-363 TO SUPPORT IMMEDIATE TRANSITION.
- 6) HMM-764 TRANSITION BEGINS DURING 3RD QTR FY13 WITH MOVE TO MCAS MIRAMAR.
- 7) GUAM TO BE SOURCED WITH CONUS BASED UDP SQUADRON. GUAM ACE SUBJECT TO ENVIRONMENTAL ANALYSIS AND THE CONDITIONS IDENTIFIED BETWEEN THE U.S. GOVERNMENT AND THE GOVERNMENT OF JAPAN.

Source: U.S. Marine Corps, Deputy Commandant for Aviation, *FY2012 Marine Corps Aviation Plan: Supporting Our Most Lethal Asset*, December, 2011, 2-6. [https://www.intranet.tecom.usmc.mil/hq/branches/atb1/TR% 20Conference% 20Info/FY2012_Marine_ Aviation_ Plan.pdf](https://www.intranet.tecom.usmc.mil/hq/branches/atb1/TR%20Conference%20Info/FY2012_Marine_Aviation_Plan.pdf) (accessed February 20, 2012).

WTTP AND T&R MANAGEMENT

Marine Aviation Weapons and Tactics Squadron One (MAWTS-1) is the U.S. Marine Corps' Aviation Center of Excellence. The Marine Corps established MAWTS-1 to implement and oversee Marine Corps Order (MCO) 3500.109, the Weapons and Tactics Training Program (WTTP)¹⁸, which states

The mission of MAWTS-1 is to provide standardized advanced tactical training and certification of unit instructor qualifications that support Marine Aviation Training and Readiness (T&R). MAWTS-1 accomplishes this by conducting the twice-annual Weapons and Tactics Instructor Course as directed in enclosure (1) as well as Supplementary Courses of Instruction as directed in enclosure (2). MAWTS-1 also provides assistance in the development and employment of aviation weapons and tactics.¹⁹

Since its commissioning, MAWTS-1 has provided a cadre of staff instructors to manage the WTTP. Each Type / Model / Series (T/M/S) of tactical aircraft that the Marine Corps operates is represented at MAWTS-1 by a cadre of staff instructors that are drawn from the Operating Force units in that T/M/S community. This means that the MAWTS-1 staff instructors for the CH-46E community are drawn from the best candidates throughout the HMM squadrons in the Operating Forces. Those staff instructors are tasked with managing and executing the portions of the WTTP that apply to the CH-46E community.²⁰

As discussed in the previous section on the transition plan for the remaining HMMs, in FY 2012 the reduced number of HMMs was overtaken by the VMMs as possessing the preponderance of the active component squadrons in the medium lift assault support community. Consequently, the MAWTS-1 focus on executing the WTTP for the medium lift assault support community as a whole must shift focus to the VMM squadrons and the MV-22B at the expense of the HMM squadrons and the CH-46E.

This shift of focus comes as the reduced number of CH-46E aircrew and squadrons yield a lower demand for Weapons and Tactics Instructor (WTI) certification at the semi-annual WTI Course held at MAWTS-1. As the demand for WTI certification in the CH-46E community is reduced, so is the overall ability and commitment of the CH-46E community to support the WTI Course with personnel and aircraft. The additional burden that is then placed on the HMM squadron commander who still desires MAWTS-1 to train some of his or her pilots and aircrew to be WTIs increases exponentially as the number of HMM squadrons participating in the WTI Course decreases. If the size of the class of CH-46E WTI candidates is smaller, then the candidates will not be exposed to all of the training experiences in tactics and large flight leadership available at the WTI Course unless other T/M/S communities share or combine training events to broaden the opportunities of the CH-46E class.²¹

As this trend continues, there comes a point in time when it is no longer feasible to train WTI pilot and enlisted aircrew candidates for the CH-46E community based solely on the “tax burden” that will be levied against the unit desiring to make the WTI. When that happens, the participation of the CH-46E community in the WTI Course will end. The current plan for WTI Course participation in the CH-46E community ends in FY 2012. The requirement for the Commanding Officer (CO) of MAWTS-1 to train WTIs for the CH-46E community will end at that point as well, but there are still additional responsibilities that the MAWTS-1 CO must provide to the CH-46E community, as outlined in the WTTP.²²

MAWTS-1 is responsible for publishing a “course catalog for each aviation community containing all supplementary courses of instruction and instructor certification requirements. . .”²³ In conjunction with this course catalog, MAWTS-1 is also responsible for conducting “[i]nstructor certifications when requested . . .” and providing “instructor certification and unit

training for deployed squadrons.”²⁴ For the CH-46E community, the supplemental courses of instruction include the Terrain Flight Instructor (TERFI) Course, the Night Systems Instructor (NSI) Course, the Defensive Measures Instructor (DMI) Course, the Aerial Gunner Instructor (AGI) Course, and the Tail Gunner Instructor (TGI) Course.²⁵

In support of these objectives, the CO of MAWTS-1 is also responsible for ensuring “[p]eriodic liaison visits are made to all Marine Corps aviation and aviation ground units to conduct appropriate supplementary courses of instruction and provide new information on Marine Corps, Joint, and threat weapons and tactics developments, and assist unit WTIs in maintaining unit training programs.”²⁶ Even after the production of WTIs in the CH-46E community ceases, MAWTS-1 will retain a small cadre of CH-46E WTI Staff Instructors for a short period of time that will continue to implement these tasks and manage the supplemental instruction and instructor certifications in accordance with the WTTP. In doing so, not only must the CO of MAWTS-1 fulfill the responsibilities listed above, but he must also:

Provide MAWTS-1 instructors, when requested, to assist squadrons / units in preparing for Marine Corps Combat Readiness Evaluation System (MCCRES), Marine Expeditionary Unit (Special Operations Capable) (MEU(SOC)) exercise, and / or Collective Training Standards (CTS) evaluations. MAWTS-1 instructors may act as advisors to evaluators but are prohibited from serving as evaluators (to include CTS evaluations; MAWTS-1 Instructors may help a unit prepare for CTS evaluations, but they shall not be the evaluators.²⁷

Due to the unique role of community representatives at MAWTS-1, serving as Flight Leadership Standardization Evaluators (FLSE), tactical and technical Subject Matter Experts (SME), and certifiers of advanced level instructors, the T&R Program Manual generally designates them as the T&R Manual syllabus sponsor for their respective communities’ T&R Manuals. Those communities that do not have representation at MAWTS-1 have a syllabus sponsor designated from another unit that is best able to meet the requirements of the syllabus

sponsor.²⁸ The syllabus sponsor is a steward of the T&R Manual for each community. “A syllabus sponsor is a unit that coordinates T&R changes on behalf of the applicable community in coordination with CG TECOM ATD. Syllabus sponsors shall maintain close liaison with their respective community counterparts.”²⁹ The WTTP further tasks the CO of MAWTS-1 to “Serve as the syllabus sponsor for all aviation T&R manuals as outlined in reference (d). Ensure T&R conferences are conducted triennially in accordance with reference (d) or as desired by operating force units.”³⁰

Management of the T&R Manual as syllabus sponsor for the CH-46E community is one of the most important functions of the CH-46E WTI Staff Instructors at MAWTS-1.³¹ The T&R Manual guides each individual unit in Marine Corps Aviation in their unit training program and ultimately is a template to ensure unit readiness standards are met. The ability of the cadre of staff instructors at MAWTS-1 to interact with each unit in the Operating Forces, in both the active component and the reserve component, and also with the Aviation Training Division (ATD) of the Marine Corps Training and Education Command (TECOM), has proved to be beneficial. Additionally, MAWTS-1 is staffed with subject-matter-experts (SME) that develop the courseware and teach the tactics that support the T&R program.³² MAWTS-1 being the syllabus sponsor is also significant because MAWTS-1 is not a voting member of their respective community’s T&R process. This impartial ownership is essential to prevent undue influence on fleet readiness.³³ The inherent responsibilities of MAWTS-1 in the other aspects of the WTTP lend well to MAWTS-1 performing the duties as the T&R syllabus sponsor.³⁴

By design, the WTI Course includes training for each WTI student in the area of training management and the application of the T&R program as either a Pilot Training Officer (PTO) or as an enlisted aircrew representative to the PTO in the squadron’s operations department.³⁵

These WTIs are groomed to return to their respective squadrons and execute not only the squadron's portion of the WTTP, but also to implement and adhere to the requirements of the T&R program to prepare their units for deployment.³⁶ For most communities, including the CH-46E community at an earlier time, WTI certified pilots and enlisted aircrew from each unit received this training in T&R program management and execution at the WTI Course and returned to their units to train their squadrons on the intricacies of the T&R syllabus. These WTIs then served as conduits between MAWTS-1 and the fleet in that they provided feedback on the effectiveness of the T&R program as they performed their duties in the Operating Forces. These WTIs also participated as fleet representatives at the T&R conferences that MAWTS-1 hosted for revisions and improvements to the T&R program.³⁷

As the number of units that are complete with the MV-22B transition grows larger than those that remain in the CH-46E, the level of support from MAWTS-1 for the MV-22B community will naturally grow larger than that required from the CH-46E community. The MAWTS-1 Table of Organization (T/O) only provides for one Medium Lift Assault Support Division.³⁸ As most other divisions transition to new platforms, the WTI Staff Instructors at MAWTS-1 undergoing the transition can perform duties in both T/M/S, as seen in the transition of the UH-1N to the UH-1Y or in the CH-53D to the CH-53E.³⁹

As discussed earlier, the unique transition from helicopter to tiltrotor does not facilitate this "dual-hatted" role. The T/O for each of these other T/M/S can balance out with a one for one replacement over time to provide the support required for both T/M/S platforms. The Medium Lift Assault Support Division must provide two totally different T/M/S communities with the required support with only one cadre of instructors that cannot "dual-hat" in its duties. In essence, the CH-46E and MV-22B WTI Staff Instructors at MAWTS-1 will always work with

a manpower shortage while both T/M/S are represented at the command because there is no provision in the T/O for an expansion of the personnel on hand to accommodate both the CH-46E and MV-22B communities as they respectively decrease and increase in size.⁴⁰

During the initial period of the MV-22 program, MAWTS-1 supported the VMM community by using staff instructors from other T/M/S platforms, mainly from the CH-46E Division, to perform administrative duties and limited exposure as in-flight observers for advanced instructor certifications, when possible.⁴¹ When qualified Operating Force personnel were established at VMM(T)-204, the MV-22B Fleet Replacement Squadron (FRS), MAWTS-1 then granted those individuals the authority to act in the capacity as a MAWTS-1 representative for WTTP management and advanced instructor certifier.⁴² As the demand for MV-22B Staff Instructor support outgrew the ability of MAWTS-1 to support with ancillary staff and deputies, the decision was made to create permanent MV-22B Staff Instructor billets by decreasing the amount of CH-46E Staff Instructor billets.⁴³ Based on the aforementioned limitation on the total number of Staff Instructors that are authorized in the Medium Lift Assault Support Division on the MAWTS-1 T/O, there was no alternative means of providing support for both communities from within the command without degrading the abilities of both portions of the staff to perform their duties.⁴⁴

Because the CH-46E Staff Instructor cadre must decrease in number to provide room for the required MV-22B Staff Instructors, a culminating point will be reached in which the ability of the CH-46E Division Staff to support WTI production cannot be maintained. This point will occur sometime during the Spring of 2012, as this paper is in the process of submission. Within eighteen months of reaching that inability to support WTI production, the CH-46E Division Staff

will also be unable to perform the other duties outlined in the WTTP, such as supplemental instruction, instructor certification, and T&R Manual syllabus sponsor duties.⁴⁵

The culminating point of the ability of the CH-46E Division to support the WTTP requirements and the T&R Manual syllabus sponsor duties for the CH-46E community does not fall on the same point on the transition timeline as the culminating point for squadrons requiring support from MAWTS-1's CH-46E Division Staff. This juncture will occur in the Summer of 2013, when the last members of the CH-46E Division Staff are replaced by MV-22B Staff Instructors. Much like the early days of MV-22B support from MAWTS-1, when other Assault Support Staff Instructors provided limited support for the VMM, the MV-22B Division Staff may be able to support HMM requests for MAWTS-1 WTTP and syllabus sponsor support, but only minimally. The solution to this problem lies in alternative means of managing T&R syllabus sponsor responsibilities and the aspects of the WTTP pertaining to the CH-46E community.

The CH-46E community now stands at the precipice. A new T&R Manual is due out in 2012 and that forthcoming edition is the last scheduled revision of the CH-46E T&R Manual. In order to have the most positive impact on the remaining squadrons in the CH-46E community, due diligence must be shown by the syllabus sponsor to consider adjustments to the T&R Manual, via changes in the assignment of syllabus sponsor duties, that will foster the best possible environment for training management in order to provide the best support possible to the MAGTF commander through the last operational obligations of the CH-46E community.

RECOMMENDATIONS

The drawdown of the CH-46E Division at MAWTS-1 presents a unique situation for the Commanding General of the Marine Corps Training and Education Command (CG TECOM) to designate a new WTTP manager and T&R manual syllabus sponsor for the CH-46E community that can maintain these programs for the remainder of the CH-46E lifecycle. Several units, distinctly different in their operational tasking, can potentially perform the duties as WTTP manager and T&R manual syllabus sponsor.

The recommended primary course of action for the reassignment of the duties upon the stand down of the MAWTS-1 CH-46E Division is to designate the MAG-39 Marine Aviation Training Systems Site (MATSS) as the WTTP manager and T&R manual syllabus sponsor. The mission and responsibilities of the MATSS have shifted over the past few years, but the focus has always been on training devices and systems and standardizing the training of the MATSS' respective wing or group squadrons. The CH-46E community could benefit from the rigor and perspective of the MATSS, as an agent of the Aviation Training System (ATS), if it was assigned the role of syllabus sponsor. The ATS concept is a transformational change for Marine Corps Aviation. ATS streamlines the training process by synchronizing training standardization and training systems acquisition with Operating Forces requirements.⁴⁶ Each Marine Air Wing (MAW) will establish MATSS units to implement these changes.

By policy guidance set forth in MCO 3710.6A, the ATS order, MATSS is the ideal entity to act as the CH-46E T&R syllabus sponsor in a small scale environment, such as within a single MAG.

ATS is the overarching aviation training structure that integrates and coordinates policy, manpower, equipment, fiscal, and operational safety program requirements. It is the framework for post-initial accession training of Marine aviation officers and enlisted personnel. ATS codifies select initial accession

aircrew training (Core Skill Introduction) for aviation units that conduct Type/Model/Series (T/M/S) –specific aviation training (e.g., Fleet Replacement Squadron (FRS), KC-130J Aviation Training Unit (ATU)). The ATS structure centers on the Marine Aviation Training System Site (MATSS), located at each Marine Corps Air Station (MCAS) and Reserve Marine Aircraft Group (MAG), which assists commanders in training their units. Simulation assets and training requirements shall be consolidated and coordinated by MATSS. MATSS shall assist in the optimization of training device and academic resource utilization, coordinate training requirements, assist in the standardization of aviation, and provide a forum for the operating forces to voice training issues.⁴⁷

Complementary to the ATS order, the T&R Program Manual also supports the integration of ATS and the participation of MATSS in supporting training via live and simulated environments as well as training and educational courseware.

The purpose of ATS is to develop and maintain a fully integrated training system across all of Marine Aviation. The training system has undergone a cultural shift where the training devices are operationally focused under the control of the Wing Commanders. Training is optimized based upon a Systems Approach to Training (SAT) derived curriculum (T&R manuals) exploiting live, virtual and constructive training environments and requisite courseware supported by established ATS and Marine Aviation Training System Site (MATSS) structure.⁴⁸

MATSS' role in the training continuum is already defined in the ATS order as well, by achieving the “. . . standardization and evaluation (S/E) of certifications, qualifications, and designations; ensuring the currency and relevance of training devices via Concurrency Management (CCM); integrating and managing training information; and providing an effective forum for identification of the operating forces' training needs and issues via the Training Management Process (TMP).⁴⁹

The current role of the MATSS already includes facilitating the execution of several key training programs, to include flight leadership, combat leadership, NATOPS, and Instrument programs.⁵⁰ Given this task, the potential for the MAG-39 MATSS to widen its purview of the CH-46E community to include syllabus sponsor of the T&R is a logical expansion of the MATSS responsibility and would meet the overall intent of both the syllabus sponsor role and

that of training oversight for the community in a complementary fashion. In addition to easing the transition for the CH-46E community, the shift of responsibility to MATSS would keep the syllabus sponsor in the same direct chain of command, as MATSS and ATS fall under the Training Management Branch of the Aviation Training Division (ATD), the CG TECOM designated administrator of the T&R program for Marine Corps Aviation.

The role as manager of the WTTP for the CH-46E community could also easily fall under the MATSS. MAG-39's MATSS is a sister unit of the last three remaining active component HMMs. Suitable personnel from any of those three HMMs can be reassigned to MATSS in a role as a FLSE Evaluator and Standardization Pilot or aircrewman. The duties involved with the execution and management of the WTTP also bear a strong resemblance to those of the MATSS Standardization role.

The secondary course of action for the reassignment of duties following the MAWTS-1 CH-46E Division stand down is to designate an active component CH-46E squadron as the WTTP manager and T&R syllabus sponsor for the CH-46E community. The last remaining CH-46E squadrons, according to the FY 2012 AvPlan, will transition in FY 2015 and FY 2016 for the active component and the reserve component respectively. Those units are HMM-268 for the active component and HMM-774 for the reserve component.⁵¹ While these units will be the last remaining CH-46E squadrons, their mission and staffing is not conducive to filling the role as WTTP manager or T&R manual syllabus sponsor. HMM-268 is slated to be the last operationally committed CH-46E squadron, reducing its ability to focus on WTTP and T&R stewardship. HMM-774, as a reserve component squadron, does not have an active duty officer and enlisted aircrew cadre robust enough to properly allot people to that billet.

The last MAG that will have Active Component CH-46E squadrons is MAG-39, based at MCAS Camp Pendleton, California.⁵² MAG-39 hosts not only the last active component operational squadrons, but also hosts the CH-46E FRS, HMM(T)-164.⁵³ Operational squadrons normally have the most interest in T&R Manual management, since they are the units most affected by any adjustments as they train and prepare for operational deployments. That same commitment to operational deployments, however, also conflicts with their ability to dedicate the time necessary to properly fulfill the duties of WTTP manager and T&R manual syllabus sponsor.

HMM(T)-164 is not an operational squadron and is a more appropriate choice for a replacement syllabus sponsor amongst HMMs when MAWTS-1 stands down its CH-46E Division. HMM(T)-164's Pilot Training Requirement (PTR) for both Category I (initial trainees) and Category III (refresher aircrew) pilots is forecast to zero out at the end of FY 2013.⁵⁴ Because of the nature of an FRS, the designations required for the squadron staff differ from that of an operational CH-46E squadron. Where an operational squadron is staffed with 28 pilots, of which only eight are required to be Basic Instructor Pilots (BIP), the Table of Organization for the staffing of the CH-46E FRS, as shown in Table (3), allots 23 *instructor pilots*, meaning all 23 pilots must be a BIP as a minimum requirement.⁵⁵

The additional requirement for BIPs and more extensive designations such as TERFI and Night Systems Familiarization Instructor (NSFI) is due to the training mission associated with the FRS. This increased allotment of instructor pilots reflects a cadre of pilots and aircrew that are more familiar with Core Skill instruction and have a better understanding of administrative execution of the T&R, as a result of the extensive BIP experience level. This higher level of

experience in basic and advanced flight instruction also makes HMM(T)-164 an ideal candidate for assumption of the duties as WTPP manager for the CH-46E community.

Table 3

HMM INSTRUCTOR REQUIREMENTS

DESIGNATION	PILOTS/FRS PILOTS	CREW CHIEFS/FRS CREW CHIEFS
BASIC INSTRUCTOR	8/23	N/A
NATOPS	1/2	1/2
ASST NATOPS	4/4	4/4
INST EVALUATOR	5/5	N/A
TERF I	6/23	6/12
DMI	2/0	2/0
NSI	4/4	4/12
NSFI	0/18	0/10
WTI+	2/1	2/1^
AGI	N/A	4/1
TGI	N/A	2/0
FLSE	2/2	N/A
FRSI / FRSCCI	23	12

+One shall be assigned as the squadron WTI. The squadron CO, XO, OPSO, and AMO shall not fill the squadron WTI billet.

^One shall be assigned in Operations as the squadron enlisted WTI.

Source: Commandant of the Marine Corps, *Aviation Training and Readiness (T&R) Manual, CH-46E*, NAVMC 3500.46A Ch 1, 1-10, December 14, 2010. <http://www.marines.mil/news/publications/Documents/NAVMC%203500.46A%20W%20CH%201.pdf>

HMM(T)-164 is also the Naval Air Training and Operating Procedures Standardization (NATOPS) model manager for the CH-46E community. The NATOPS program outlines flight procedures and operating instructions for each T/M/S aircraft in the naval inventory. The community NATOPS model manager performs a similar function for the NATOPS Manual as the syllabus sponsor does for the T&R Manual. Familiarity with such a role in the community would facilitate an easier adaptation to the additional tasking as syllabus sponsor. The non-operational status of HMM(T)-164, its familiarity with similar roles such as the NATOPS model manager, its staffing of qualified instructor pilots with more than casual experience in T&R execution, and its forecast drawdown in PTR present a good opportunity for designation as the syllabus sponsor. The benefits of HMM(T)-164 assuming the duties of syllabus sponsor and

CH-46E WTTP manager when the MAWTS-1 CH-46E Division stands down far exceed the benefits of an Operating Force unit assuming the aforementioned duties, but according to the FY 2012 AvPlan, HMM(T)-164 is scheduled to transition to a VMM prior to the last Operating Force units transitioning, leaving another gap in coverage as the syllabus sponsor and WTTP manager.⁵⁶

CONCLUSION

In order to have the most positive impact on the remaining squadrons in the CH-46E community, due diligence must be taken to consider adjustments to the administrative structure of the T&R Manual and the WTTP that will foster the best possible environment for training in a manpower and resource constrained environment. The ability of MAWTS-1 to provide continued support to HMMs in the form of CH-46E Staff Instructors does not align with the sundown of the HMMs in the FY 2012 AvPlan. Additionally, the level of training required of and operational tasking for the HMMs of the CH-46E community has not decreased proportionally with the number of remaining CH-46E squadrons.

The current plan for the CH-46E community as it transitions to the MV-22B does not include any clear plan to provide T&R Manual syllabus sponsorship duties or WTTP management duties through the community's sundown. This paper provided analysis and recommendations for several different means of extending these programs in the CH-46E community using existing entities that will bear no extra fiscal burden for the Marine Corps and will assist in the graceful transition of the medium lift assault support community.

Notes

¹U.S. Marine Corps, Deputy Commandant for Aviation, *FY2012 Marine Corps Aviation Plan: Supporting Our Most Lethal Asset*, December, 2011, 4. [https://www.intranet.tecom.usmc.mil/hq/branches/atb1/TR% 20Conference%20Info/FY2012_Marine_ Aviation_Plan.pdf](https://www.intranet.tecom.usmc.mil/hq/branches/atb1/TR%20Conference%20Info/FY2012_Marine_Aviation_Plan.pdf) (accessed February 20, 2012). Cited hereafter as DCA, “FY2012 AvPlan”

²Staff Reports, “Marine Corps gets 1st F-35B,” *YumaSun.com*, January 11, 2012, <http://www.yumasun.com/articles/marine-75870-corps-aircraft.html>, (accessed January 21, 2012).

³DCA, “FY2012 AvPlan,” 3.

⁴DCA, “FY2012 AvPlan,” 4.

⁵DCA, “FY2012 AvPlan,” 1-3.

⁶DCA, “FY2012 AvPlan,” 4.

⁷DCA, “FY2012 AvPlan,” 3.

⁸Richard Whittle, *The Dream Machine*, (New York, NY: Simon & Schuster, 2010), 8.

⁹Joint Staff, *Department of Defense Dictionary of Military and Associated Terms*, JP 1-02 (Washington DC: Joint Staff, as amended through January 15, 2012) A-59.

¹⁰DCA, “FY2012 AvPlan,” 2-6.

¹¹Robert M. Liebe, “Planning Flight Training for the Transition to the V-22 Osprey,” (Master’s Thesis, Naval Postgraduate School, 2000), 6.

¹²Liebe, 6.

¹³Liebe, 7-8.

¹⁴Lieutenant Colonel Jason Holden, USMC, Washington, DC, interview with the author, 22 March 2012, Quantico, VA, transcript in the hand of Garth W. Burnett, Quantico, VA.

¹⁵Senate Committee on Armed Services. *Report of the Panel to Review the V-22 Program: Hearing before the Committee on Armed Services*, 107th Cong., 1st sess., May 1, 2001, 219-220.

¹⁶Whittle, 364-367.

¹⁷DCA, “FY2012 AvPlan,” 2-6.

¹⁸ U.S. Marine Corps, Commandant of the Marine Corps, *Marine Corps Aviation Weapons and Tactics Training Program (Short Title: WTTP)*, Marine Corps Order 3500.109, January 16, 2007, 1, <http://www.marines.mil/news/publications/Documents/MCO%203500.109.pdf> Cited hereafter as CMC, “WTTP”

¹⁹CMC, “WTTP,” 1.

²⁰Lieutenant Colonel Matthew Robbins, USMC, Quantico, VA, letter to Garth W. Burnett, Quantico, VA, 16 March 2012, transcript in the hand of Garth W. Burnett, Quantico, VA.

²¹Captain JEB Bolen, USMC, Yuma, AZ, letter to Garth W. Burnett, Quantico, VA, 30 January 2012, transcript in the hand of Garth W. Burnett, Quantico, VA.

²²Bolen.

²³CMC, “WTTP,” 5.

²⁴CMC, “WTTP,” 5.

²⁵CMC, “WTTP,” 16-17.

²⁶CMC, “WTTP,” 5.

²⁷CMC, “WTTP,” 6.

²⁸U.S. Marine Corps, Commandant of the Marine Corps, *Aviation Training and Readiness (T&R) Program Manual*, NAVMC 3500.14C, 5-3, August 23, 2011, <http://www.marines.mil/news/publications/Documents/NAVMC%203500.14C%20%2023%20Aug%2011.pdf> (accessed December 23, 2011). Cited hereafter as CMC, “T&R Program Manual”

²⁹CMC, “T&R Program Manual,” 5-3.

³⁰CMC, “WTTP,” 5.

³¹Captain Jared Ledbetter, USMC, Yuma, AZ, letter to Garth W. Burnett, Quantico, VA, 30 January 2012, transcript in the hand of Garth W. Burnett, Quantico, VA.

³²Holden.

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³⁷Major Richard Alvarez, USMC, Yuma, AZ, letter to Garth W. Burnett, Quantico, VA, 30 January 2012, transcript in the hand of Garth W. Burnett, Quantico, VA.

³⁸Lieutenant Colonel Jay Moorman, USMC, Washington, DC, letter to Garth W. Burnett, Quantico, VA, 31 January 2012, transcript in the hand of Garth W. Burnett, Quantico, VA.

³⁹Robbins.

⁴⁰Robbins.

⁴¹Holden.

⁴²Holden.

⁴³Robbins.

⁴⁴Moorman.

⁴⁵Alvarez.

⁴⁶Captain Mark Fenwick, USMC, “Aviation Training System: Winds of Change in Marine Corps aviation training,” *Marine Corps Gazette* (May, 2010): 52.

⁴⁷U.S. Marine Corps, Commandant of the Marine Corps, *Aviation Training Systems (ATS)*, MCO 3710.6A, September 20, 2011, 2. http://www.marines.mil/news/publications/Documents/MCO%203710_6A.pdf (accessed December 23, 2011). Cited hereafter as CMC, “ATS”

⁴⁸CMC, “T&R Program Manual,” 2-4.

⁴⁹CMC, “T&R Program Manual,” 2-4.

⁵⁰CMC, “ATS,” 1-3.

⁵¹DCA, “FY2012 AvPlan,” 2-6.

⁵²DCA, “FY2012 AvPlan,” 2-6.

⁵³DCA, “FY2012 AvPlan,” 2-6.

⁵⁴DCA, “FY2012 AvPlan,” 11-12.

⁵⁵U.S. Marine Corps, Commandant of the Marine Corps, *Aviation Training and Readiness (T&R) Manual, CH-46E*, NAVMC 3500.46A Ch 1, 1-3, December 14, 2010. <http://www.marines.mil/news/publications/Documents/NAVMC%203500.46A%20W%20CH%201.pdf> Cited hereafter as CMC, “CH-46E T&R”

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